

THAT WHICH IS CLAIMED IS:

1. A subscriber line interface circuit (SLIC) for a subscriber loop, the SLIC comprising:
 - a pair of output amplifiers for connection to the subscriber loop; and
- 5 a transient output current limit circuit having at least one programmable output current limit and for limiting respective output currents from said pair of output amplifiers based thereon.
2. The SLIC of Claim 1 wherein said transient output current limit circuit limits both source and sink currents for each of said pair of output amplifiers.
3. The SLIC of Claim 1 wherein said transient output current limit circuit generates a source current limit and a sink current limit based upon the at least one programmable current limit.
4. The SLIC of Claim 3 wherein the sink current limit is offset a predetermined amount higher than the source current limit.
5. The SLIC of Claim 4 wherein the predetermined amount is less than about 40% higher than the source current limit.
6. The SLIC of Claim 1 wherein the at least one programmable output current limit comprises a programmable sink current limit and a programmable source current limit.

7. The SLIC of Claim 1 wherein said transient output current limit circuit comprises:

a reference current generator for generating a reference current based upon the at least one
5 programmable output current limit; and
source and sink comparators for comparing sensed source and sink output currents for each of said output amplifiers with the reference current.

8. The SLIC of Claim 7 wherein said transient output current limit circuit further comprises at least one transconductance stage connected between said source and sink comparators and said pair
5 of output amplifiers.

9. The SLIC of Claim 7 further comprising respective source and sink prescalers connected to said source and sink comparators.

10. The SLIC of Claim 7 wherein the at least one programmable output current limit is programmed by connecting a programming resistor between a reference voltage and said reference current generator.

11. The SLIC of Claim 7 wherein said reference current generator comprises a temperature stabilized voltage reference source.

12. The SLIC of Claim 1 further comprising a direct current (DC) loop current limit circuit for limiting current on the subscriber loop to a DC current limit.

13. The SLIC of Claim 12 wherein the at least one programmable output current limit is higher than the DC current limit.

14. The SLIC of Claim 13 wherein the at least one programmable output current limit is less than about 50% higher than the DC current limit.

15. A subscriber line interface circuit (SLIC) for a subscriber loop, the SLIC comprising:

a pair of output amplifiers for connection to the subscriber loop;

5 a direct current (DC) loop current limit circuit for limiting current on the subscriber loop to a DC current limit; and

10 a transient output current limit circuit having at least one programmable output current limit and for limiting both source and sink currents from said pair of output amplifiers based on the at least one programmable output current limit.

16. The SLIC of Claim 15 wherein said transient output current limit circuit generates a source current limit and a sink current limit based upon the at least one programmable current limit.

17. The SLIC of Claim 16 wherein the sink current limit is offset a predetermined amount higher than the source current limit.

18. The SLIC of Claim 17 wherein the predetermined amount is less than about 40% higher than the source current limit.

19. The SLIC of Claim 15 wherein the at least one programmable output current limit comprises a programmable sink current limit and a programmable source current limit.

20. The SLIC of Claim 15 wherein said transient output current limit circuit comprises:

a reference current generator for generating a reference current based upon the at least one programmable output current limit; and

source and sink comparators for comparing sensed source and sink output currents for each of said output amplifiers with the reference current.

21. The SLIC of Claim 20 wherein said transient output current limit circuit further comprises at least one transconductance stage connected between said source and sink comparators and said pair of output amplifiers.

22. The SLIC of Claim 20 further comprising respective source and sink prescalers connected to said source and sink comparators.

23. The SLIC of Claim 20 wherein the at least one programmable output current limit is programmed by connecting a programming resistor between a reference voltage and said reference current generator.

24. The SLIC of Claim 20 wherein said reference current generator comprises a temperature stabilized voltage reference source.

25. The SLIC of Claim 15 wherein the at least one programmable output current limit is higher than the DC current limit.

26. The SLIC of Claim 25 wherein the at least one programmable output current limit is less than about 50% higher than the DC current limit.

27. A transient output current limit circuit for limiting current from an amplifier comprising:

5 a reference current generator for generating at least one reference current based upon at least one programmable output current limit;

respective source and sink prescalers for sensing source and sink output currents for the amplifier; and

10 comparing the sensed source and sink output currents with the at least one reference current and for limiting current from the amplifier based thereon.

28. The transient output current limit circuit of Claim 27 further comprising at least one transconductance stage connected between said source and sink comparators and the amplifier.

29. The transient output current limit circuit of Claim 27 wherein the at least one reference current comprises a source reference current and a sink reference current.

30. The transient output current limit circuit of Claim 29 wherein the sink reference current is offset a predetermined amount higher than the source reference current.

31. The transient output current limit circuit of Claim 30 wherein the predetermined amount is less than about 40% higher than the source reference current.

32. The transient output current limit circuit Claim 27 wherein the at least one programmable output current limit comprises a programmable sink current limit and a programmable source current limit.

33. The transient output current limit circuit of Claim 27 wherein the at least one programmable output current limit is programmed by connecting a programming resistor between a reference voltage and said reference current generator.

34. The transient output current limit circuit of Claim 27 wherein said reference current generator comprises a temperature stabilized voltage reference source.

35. A method for limiting current on a subscriber loop comprising:

connecting a pair of output amplifiers to the subscriber loop;

programming at least one output current limit; and

limiting currents from the pair of output amplifiers based upon the at least one programmable output current limit.

36. The method of Claim 35 wherein limiting currents comprises limiting both source and sink currents for each of the pair of output amplifiers.

37. The method of Claim 36 further comprising generating a source current limit and a sink current limit based upon the at least one programmable current limit; and wherein limiting both source and
5 sink currents comprises limiting both source and sink currents based upon the source current limit and the sink current limit.

38. The method of Claim 37 wherein the sink current limit is offset a predetermined amount higher than the source current limit.

39. The method of Claim 38 wherein the predetermined amount is less than about 40% higher than the source current limit.

40. The method of Claim 35 wherein programming the at least one output current limit comprises programming the at least one output current limit using a programming resistor.

41. The method of Claim 35 further comprising limiting current on the subscriber loop to a direct current (DC) current limit.

42. The method of Claim 41 wherein the at least one programmable output current limit is higher than the DC current limit.

43. The method of Claim 42 wherein the at least one programmable output current limit is less than about 50% higher than the DC current limit.